CLEMEX

IMAGE ANALYSIS REPORT

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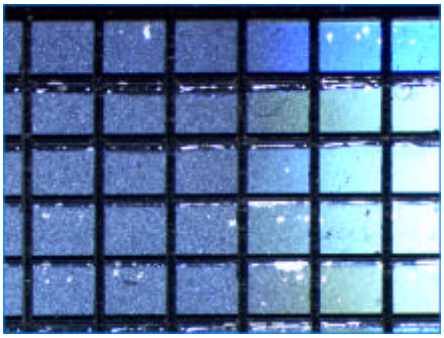
Fiber Optic Wedges



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Part I: Specifications

Sample Description

Two samples of fiber optic wedges are submitted for analysis.

Purpose of Analysis

Demonstrate that Clemex Vision image analyzer can discriminate and count the fiber optic wedges on both kinds of holder (silicon wafer and gel pak).

Apparatus

Image Analysis System:	Clemex Vision PE V3.5
Camera:	Sony DXC 950P (color not necessary)
Microscope:	Nikon SMZ800
Illumination Type:	Fiber optic light
Magnification:	10 X
Calibration:	0.012 mm/pixel

Procedure[1]

Gaps between wedges are detected into red binary plane (bitplane) using gray thresholding. Artifacts are eliminated by binary traps and the red bitplane is inverted. Again, some binary tools are used to eliminate remaining artifacts and wedges that are sectioned by the field of view.

Results

Area measurements are performed. Results are cumulated for automated statistics and graphics production. Limit for incomplete wedges is fixed to 1.1 mm^2. This limit can be changed anytime. Statistics are separated into two parts: statistics between parentheses include rejected features and the others don't. Total count (for both parts) and rejected count are automatically available with any measurement. Final results are printed directly from Clemex Vision. Raw data are linked to their respective object and can be exported in Excel format.

Discussion

The main difficulty analyzing fiber optic wedges remains in the lightening. Since the wedge intensity greatly fluctuate, gap between them are easier to isolate. We have to illuminate the wedges such a way to obtain dark gaps between them. Once this is done, there are no major difficulties to obtain a reliable count of features. The analysis was performed in manual mode but a motorized stage of proper size could be used to perform a faster analysis.

[1] Images to follow the procedure are available in part II.

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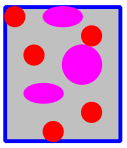
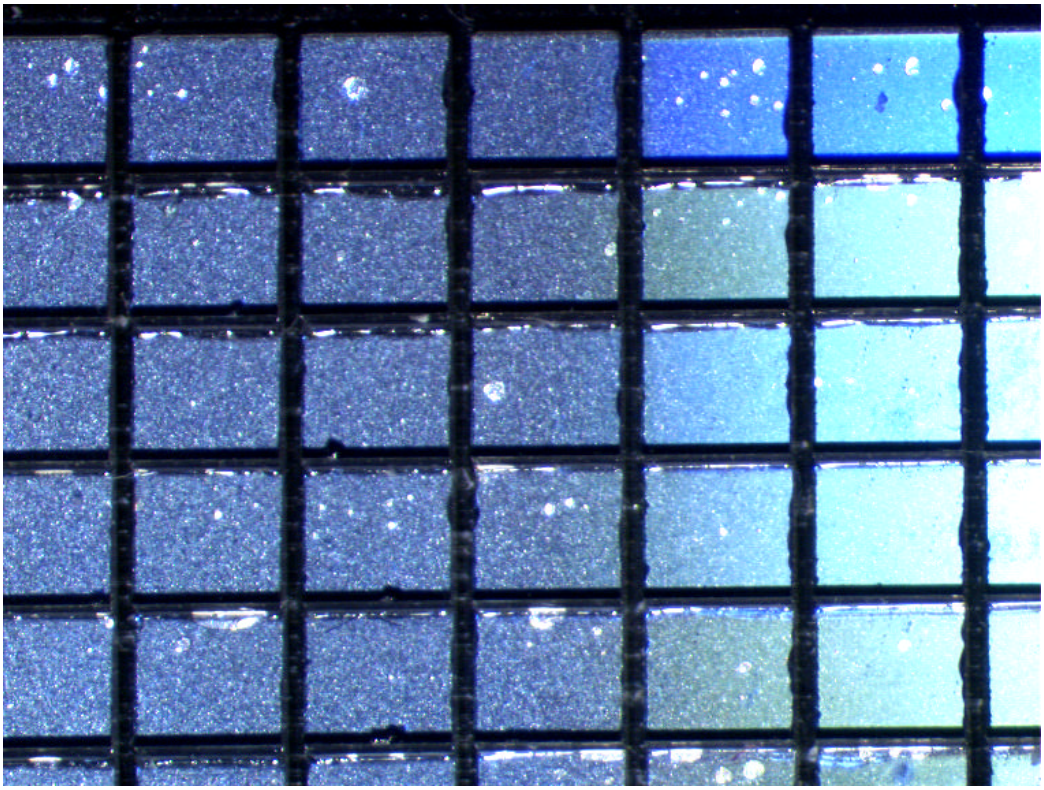
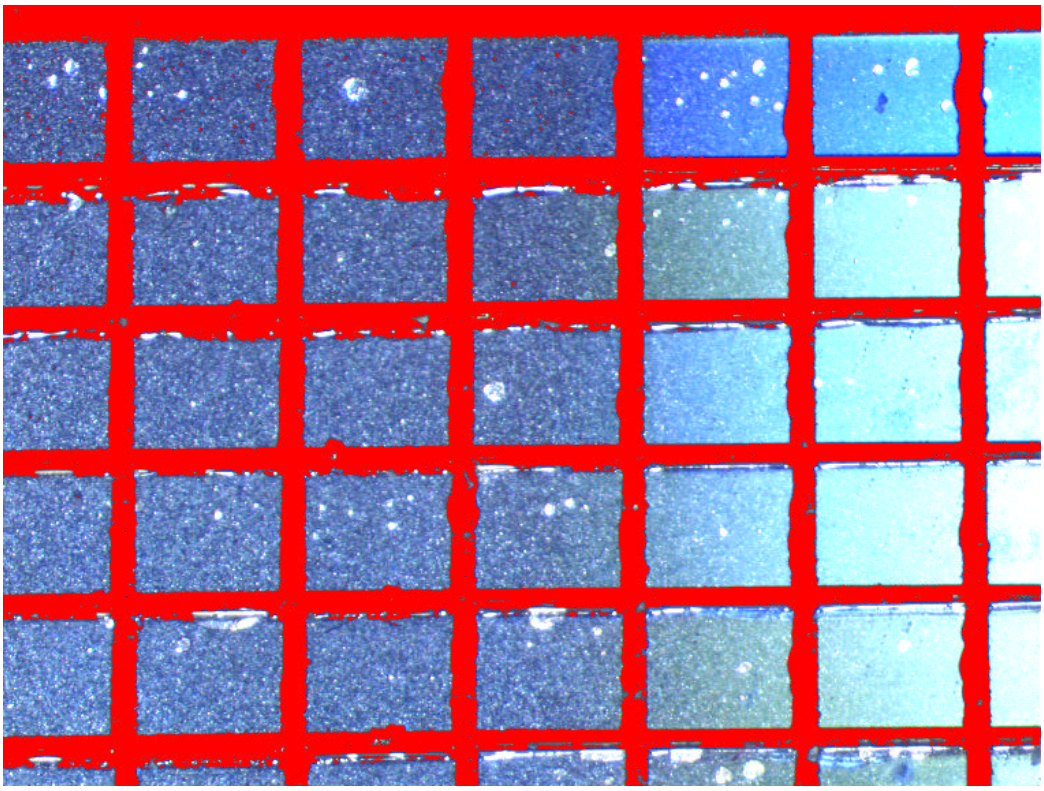
Part II: Images



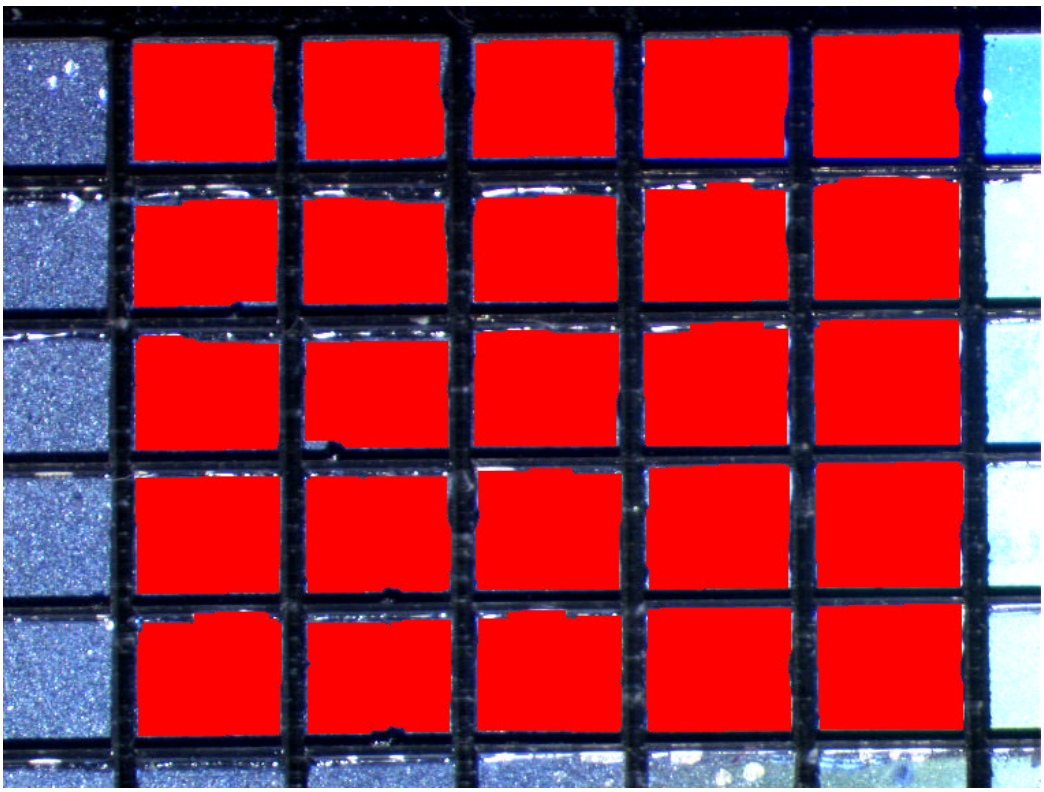
Sample 1: Fiber optic wedges on a silicon wafer.



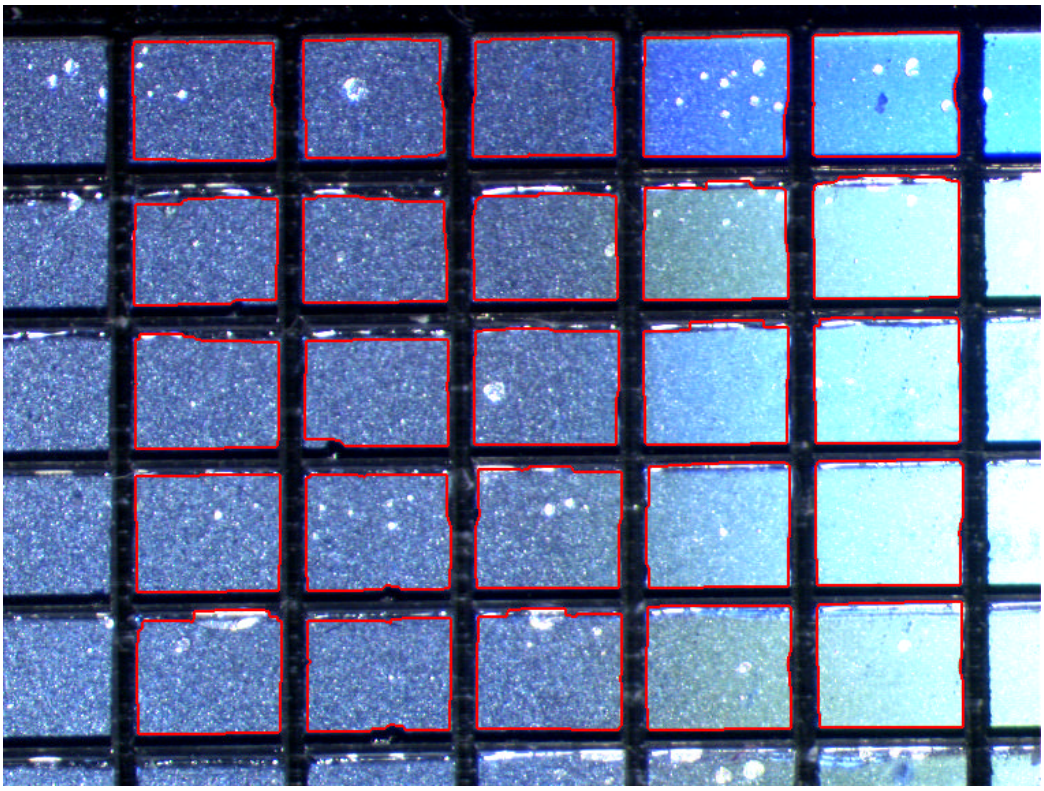
Original image of fiber optic wedges on a silicon wafer (10x).



Gaps between wedges are binarized into red bitplane.

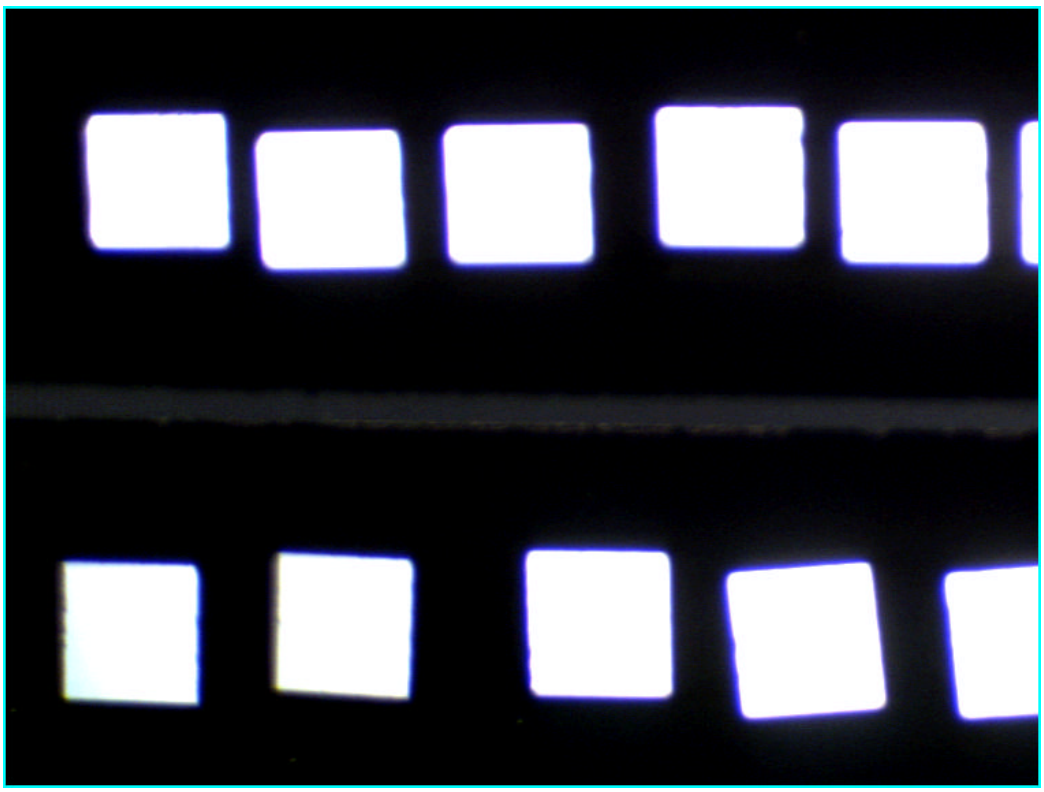


Red bitplane is inverted, cleaned from artefacts and sectionned wedges then measured.

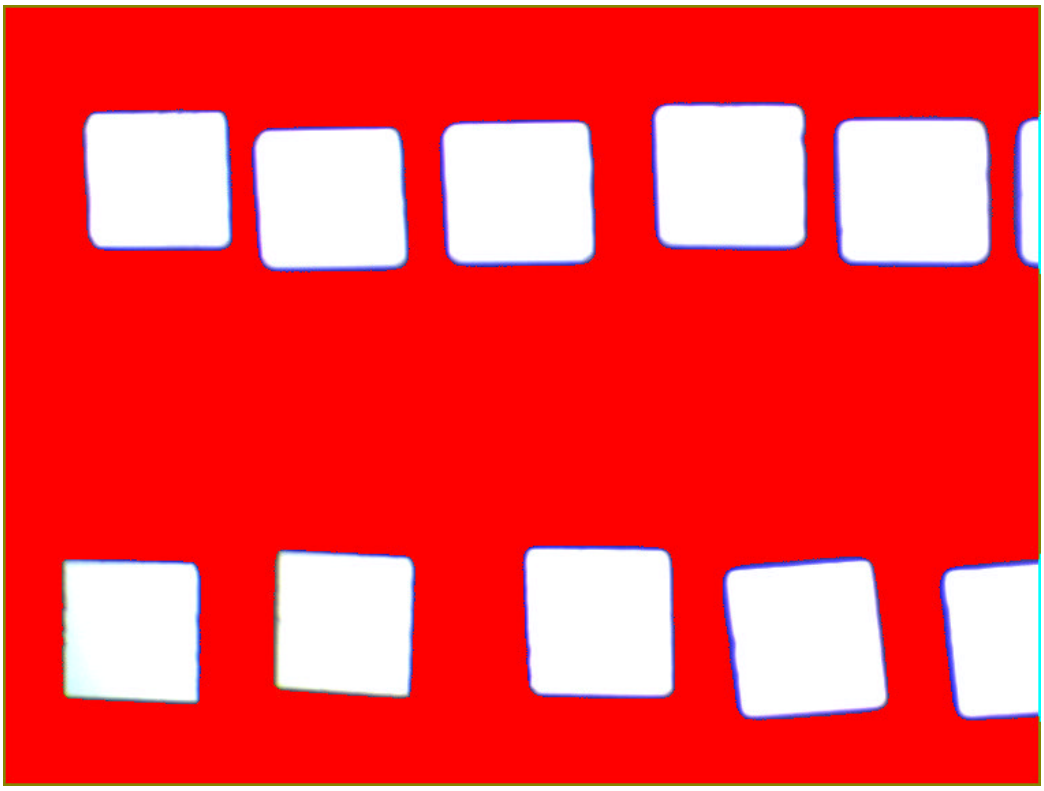


Red bitplane in outline view overlaid against the original image.

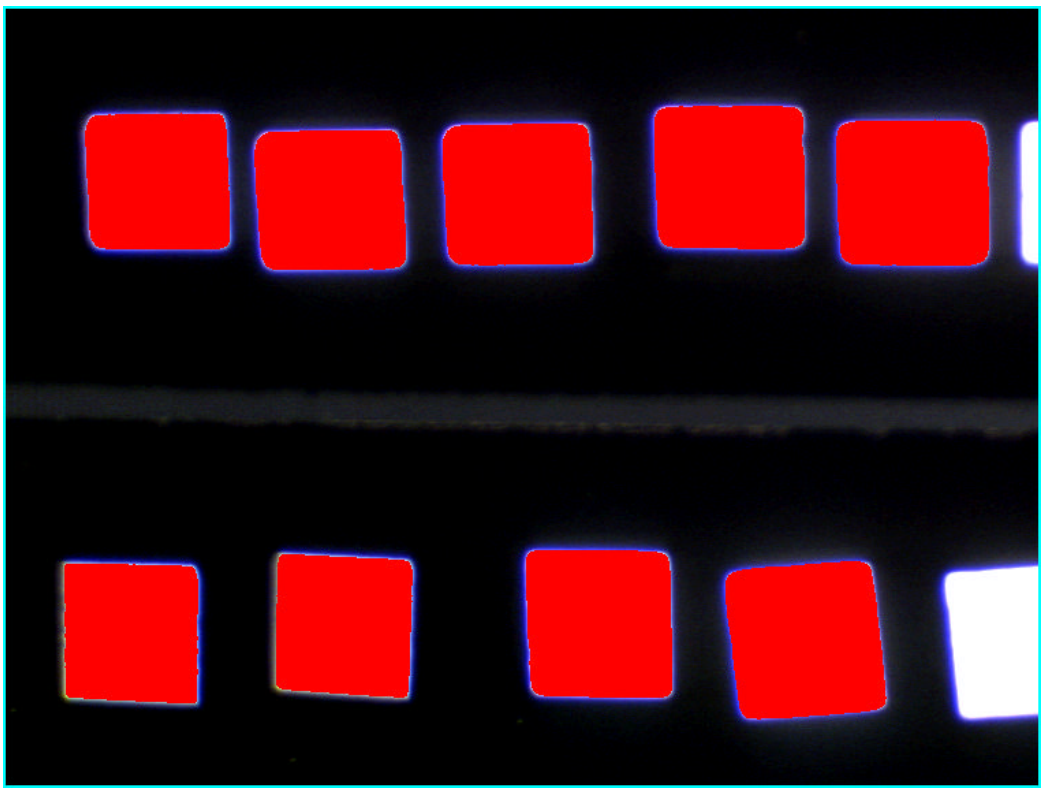
Sample 2: Fiber optic wedges on a gel pak.



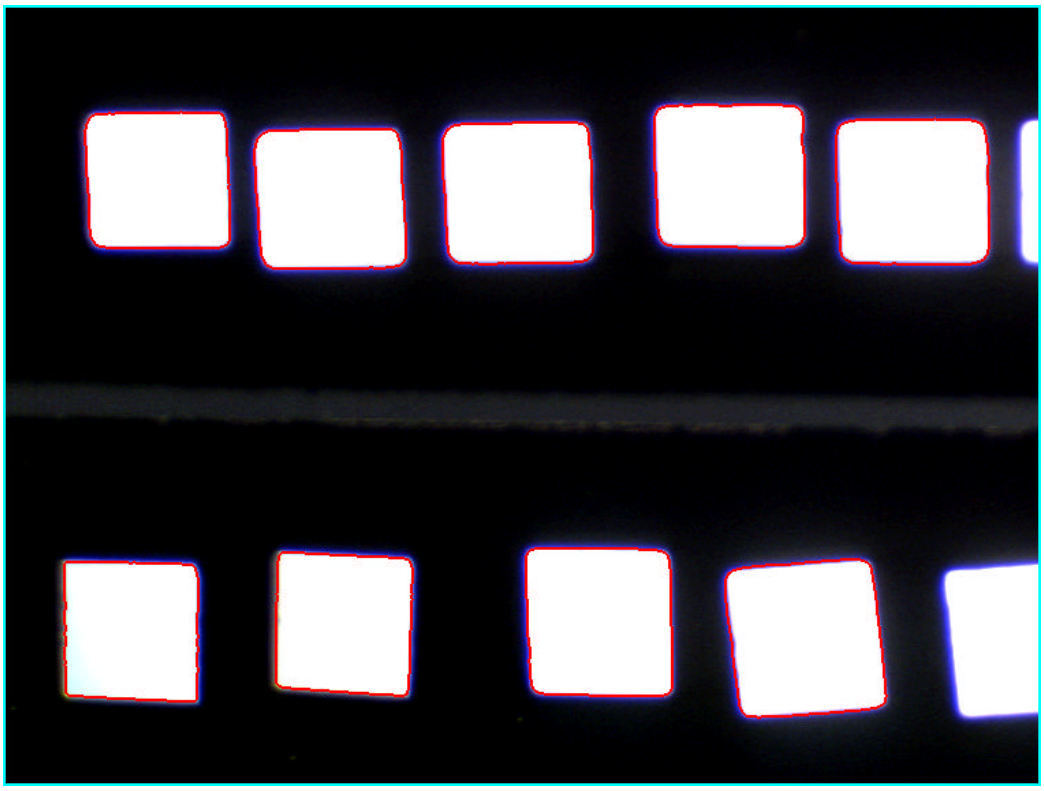
Original image of fiber optic wedges on a gel pak (10x).



Gaps between wedges are binarized into red bitplane.



Red bitplane is inverted, cleaned from artefacts and sectionned wedges then measured.



Red bitplane in outline view overlaid against the original image.

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THE IMAGE ANALYSIS PEOPLE